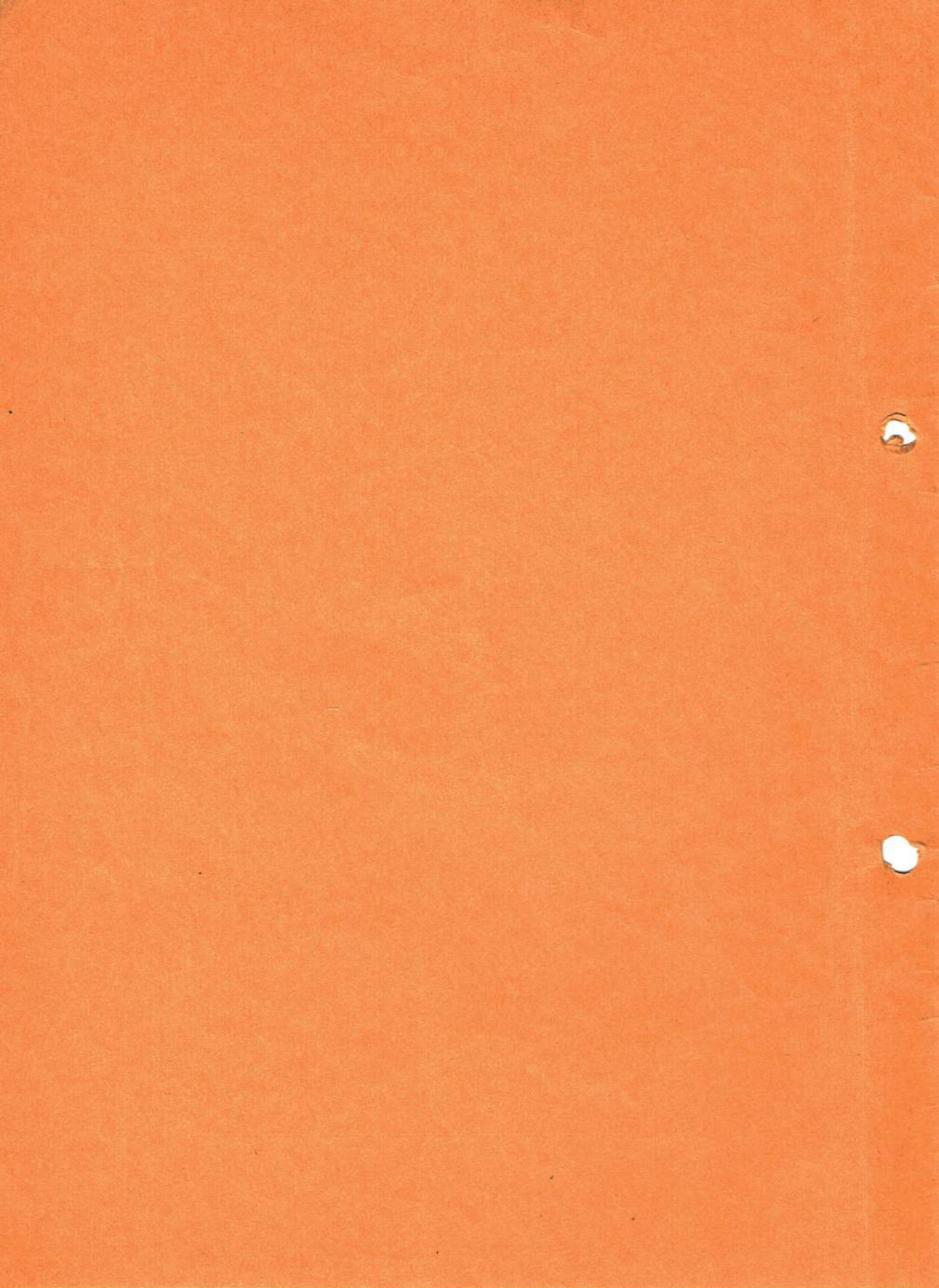


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'66



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NON LOQUI-1966

OFFICIAL JOURNAL OF THE UNIVERSITY ENGINEERS CLUB,
UNIVERSITY OF W.A.



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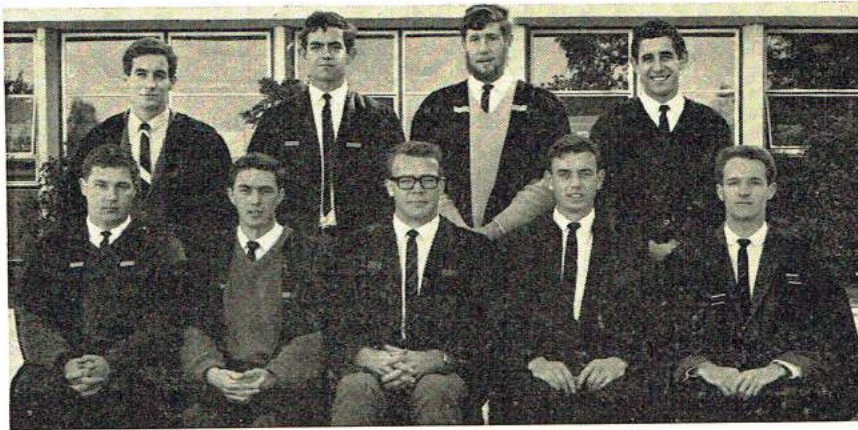
Miss

Engineering

'66

Elfie Beard





U.E.C. COMMITTEE, 1965

Editorial

Just 100 years ago on January 5th, 1866, the first printing of the journal "Engineering" was released. It is from this inaugural edition that we quote these extracts describing the views of the editor, Zerah Colburn, on the Profession of Engineering.

"The word Engineer has grown into English from the good old Latin, *ingenium*, whereby the Romans expressed, in an exalted sense, their idea of heart, mind, abilities, or genius. One would have supposed the other professions would have long ago appropriated a word of so much meaning, not to say grandeur and so plastic in its application. Yet, whether our judgment be impartial or no, we believe that no other field of thought and action deserves the term so much as our own.

The foundation of the churchman's profession is in faith and goodness, that of the law should be in right and common sense. The physician may be said to come nearer to that close and responsible observation and interpretation of nature to which *ingenium* best applies; but where the professor of the healing art watches the pulse of mortal life, the engineer goes straight to the very heart of immortal nature. All its grand forces and wonderful phenomena are open to his touch.—No man stands so close to nature as the engineer; none other dare, or can, bid her do this, and do that as the engineer may do, and indeed, does daily. The philosopher may go before, discovering the laws of forces and the relations of matter. Thus did Galileo, Newton and Leibnitz, and in later times, Lavoisier, Black and Davey, and still later, Faraday, Thomson and Rankine. Their discoveries were the foundations of engineering science, but valuable only in the proportion to which they have been, and may be, turned to account in practice. This is the profession of the engineer, as defined in the charter which Telford obtained, for himself and his associates, from George the Fourth—"The art of directing the great sources of power in nature for the use and convenience of man'."

As it was then so should it be now!

President's Report

Fellow Members,

It is customary in this letter to fleetingly review the past year—I am glad to also have this opportunity. The club activities were generally successful, due once again to a lot of work from a small band of club stalwarts that seems to exist, thank heavens, in almost every year. But 1965 will not be remembered for the social activities of the club—rather it will be remembered on three other accounts.

Firstly, there was the adoption by Faculty of the four year course, which in itself is a tremendous step forward. The effect it will have on the U.E.C. still remains to be seen, but if I may be allowed a small indulgence in predicting the future then I would say the club has happy days to look forward to. By lowering the average age of members, both first and second years will inevitably be drawn more into club activities. The management of the club will be in younger hands, and I feel only good will come of it. But to this end, the committee will have to concentrate on attracting first years to club functions within their first few months as members.

Secondly, the fees were increased by one-third. Where will this extra money be spent? Every member of the U.E.C. has the right—the duty, to ask himself this question. Do not let your wisdom be blinded by selfishness.

Finally, but by no means least, is the fact that 1965 was the first year the U.E.C. had a female member. May there be many more, and may they be equally as agreeable as Kaye.

I take this opportunity of wishing you all the best for the future, and look forward to meeting you again as Engineers.

PHILLIP J. HARVEY,
1965 President of the U.E.C.

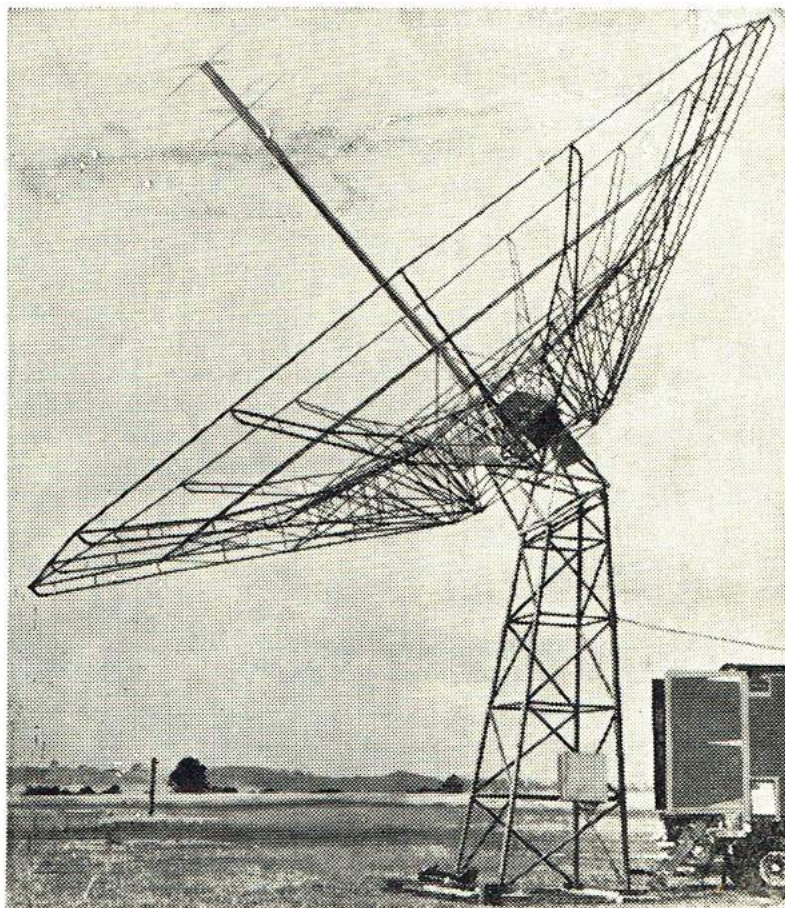
DR. JULIAN HUNKA, D.E. (Lodz), Dipl.Ing. (Danzig), A.M.I.E.Aust.

The death of Dr. Hunka while on sabbatical leave on the 6th May, 1966, is a sad loss to the Engineering Department. Born and educated in Poland, Dr. Hunka had been Professor of Machine Design at the University of Lodz (Poland) for eight years before coming to Australia in 1957. After several years on the Melbourne University staff he came to this University in 1960 where his studies and lectures dealt mainly with dynamics, kinematics and machine design. All the students who knew this much respected man regret the loss of his humorous and helpful personality, a glimpse of which can possibly be found in these extracts from previous *Non Loqui's*—

'62. "Has developed a magnificent technique for rebuffing all obstructionist questions asked."

'64. "Conducted lectures on dynamics and helped us to struggle with the struggle encountered when struggling."

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The Sydney Opera House

N. Baranowski

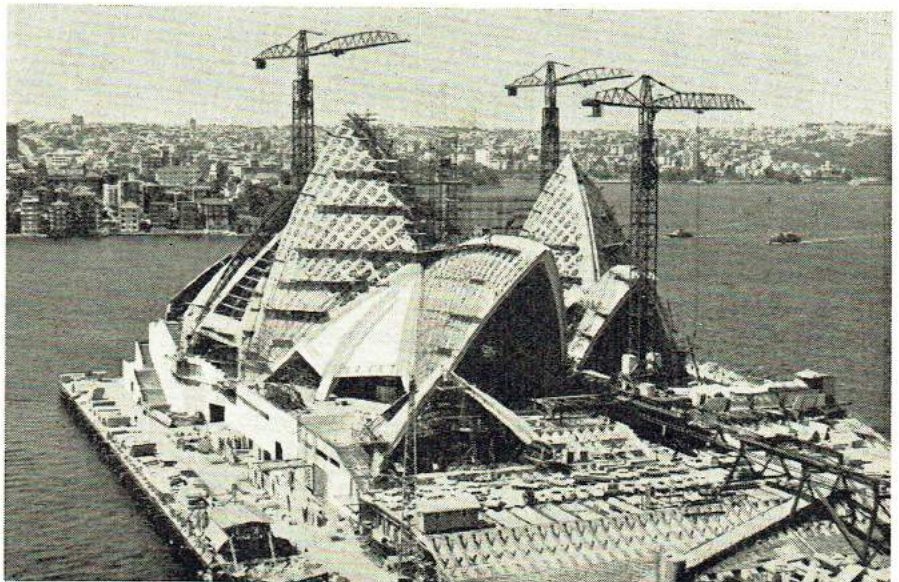
Situated on Bennelong Point, the entrance to Sydney, the Opera House promises to be one of the modern wonders of the building world. It will be a prominent landmark and against the grey back-drop of the Harbour Bridge, the Opera House, in its gleaming white tiles will be an inspiring sight to all Sydney visitors.

Many people, however, disagree as to the beauty of this structure. One of our lecturers in fact refers to it as "that pregnant cockroach"—a rather biased opinion. Utzon, of course, does not compare to the famous Italian Architect-Engineer, but should be given some recognition for his creation. He is at least daring in his design, and differs from Candela, another shell builder, who only builds what can be easily analysed and is known from experience to work. It is not surprising therefore, that Candela's view of the Sydney Opera House is rather vitriolic. One cannot condemn the architectural concept of the Sydney Opera House, that in itself is aesthetically beautiful; it is only that Utzon, not being an engineer of Nervi's calibre, has failed to grasp the structural concept.

The competition for the S.O.H. was won by Joern Utzon; this tall, imposing Dane, convinced the panel of non-engineers that his design was practicable and ideal for the Sydney site. An estimate of costs in 1958 stood at a mere \$10 million. Then prices began spiralling. It took the engineers, Ore Arups and Partners, the thin shell consultants in England, to realize that the structure could not be built as designed. The proposed thin shell would not support itself at the pedestals. An alternative scheme whereby the sail-roof was composed of pre-cast, post tensioned segments, was adopted. These segments are fifteen feet long and triangular in cross-section; their average weight is ten ton. A far cry from Utzon's thin shells!

The S.O.H. consists essentially of three separate buildings—the Major Hall the Minor Hall, and the Restaurant. The two halls are side by side, similar in construction except the Minor Hall is built to a scale of 0.78 times that of the larger hall. Every shell and curved section is part of a sphere of radius 246 feet—thus creating a great deal of repetition.

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Springing from the base, or Podium, the shells rise to a height of 120 feet. Together with the Podium, the top of the highest shell is 230 feet above sea level, that is, 30 feet above the road deck of the Harbour Bridge. The Podium is honeycombed with rooms and halls, its basement extends below sea level. Approach to the Podium is by means of steps called the Concourse. These are 93 yards wide and will be covered with pink granite. Gloss white tiles, imported from Sweden, will cover the roof. Over 1,200,000 tiles are needed.

Interior seating of the Major Hall and Minor Halls is 2800 and 1800 respectively. The former has a rectangular stage capable of being lowered three floors, whilst the Minor Hall has a circular stage which can revolve as well as be lowered. Machinery and assembly of the stage towers alone cost about \$1 million each.

There has been some talk that acoustically the S.O.H. will be a failure. This is untrue. The three essentials in acoustical design; low level of background noise, that sound be sufficiently loud and that it be well distributed throughout the space, have all been considered very carefully. Apart from the thick concrete segments of the ribs, the roof is covered with tile lids, the underneath of which is sprayed with polyurethane—an excellent insulating material. Sound reproduction and amplification is in the hands of one of the world's best and biggest companies—Siemens Electronics of Germany, and the third aspect has been satisfied by

a specially designed suspended ceiling. Elaborate experiments have been carried out with large scale models in Berlin and Copenhagen achieving excellent results. Acoustics are slightly superior to those of the new Berlin Philharmonic Hall and the Berlin Opera House, generally regarded as two of the outstanding auditoria of postwar Europe.

The recent \$146 million increase in cost is due to extra stage machinery, lighting, furniture, including the Cocktail Bar area and the Restaurant, amounting to \$4 million. The remaining \$106 million went towards paying the consultants and completion of the room.

To cut expenditure, the architect, Mr. Utzon resigned. Programming with the computer is to be extended as this has proved to be effective in the roof construction, and closer co-operation between the parties involved was suggested. Even though the Utzon is no longer in charge, the Minister for Public Works assures that the S.O.H. will be completed by July, 1969. I have my doubts and would suggest July, 1970.

It is interesting to note, that at the time of completion, the lottery revenue will be \$52.6 million, if sales continue at the same rate as now.

Whether it be a white elephant, or a pregnant cockroach, the S.O.H. is a tribute to the skill of the Engineer and a monument to modern construction in Australia.

A man had nine sons—

The first was a politician,
The second had no brains either.
The third was a Bishop,
The fourth was also immoral.
The fifth was a great financier,
The sixth had the adjoining cell.
The seventh was an O.B.E.,
The eighth didn't go to war either.
The ninth was so disgusted with his family he
remained single like his father.

"An engineer is a man who can do for five
bob what any bloody fool can do for ten."

Nevil Shute, Norway.

* * *

"Infinity is where things happen that don't.
A statement attributed to a schoolboy.

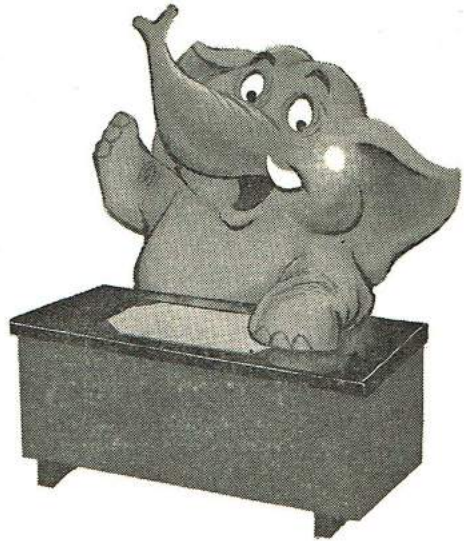
* * *

You have only to say something is impossible
and some mathematician will go and do it.

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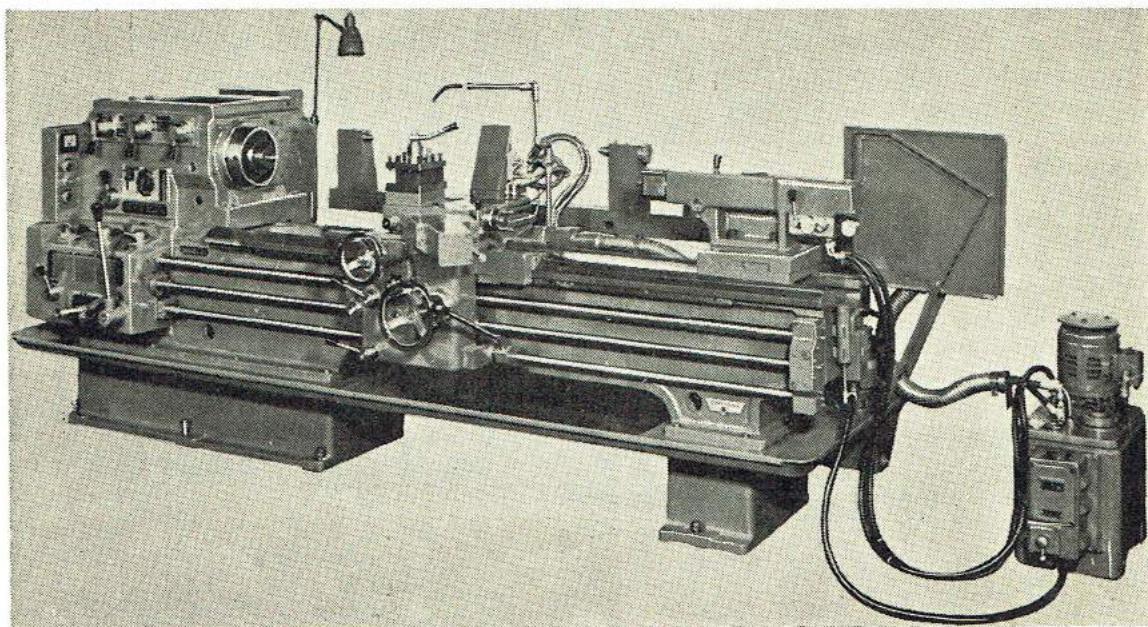
bon sante

proost



*One year ago the legend tells,
Came John, there was none bolder;
At Crawley Bay his mount bestrode,
And round the Campus rolled her.
“Dear, dear,” quoth he, “no road I see,
But wherein lies the need, Sir?
I’ll swerve for neither kerb nor tree,
And pond my trusty steed, Sir.”*

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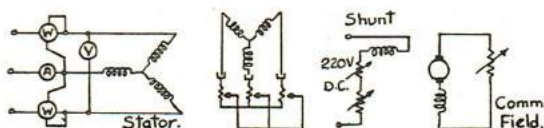
The Writing of Reports

C. R. Temby

Aim: To study the slip-torque characteristics of the wound-rotor induction motor.

i.e. to be out of this place in an hour. The wires baffle me, I never know what the hell's going on, there are no chains and I consider electricity downright dangerous anyway.

Apparatus: The machine was supplied with 440v, 3-phase 50 C/S power and directly loaded with a d-c generator as a dynamometer. Variable external resistors were connected to the phase windings of the rotor. The wiring arrangement is shown below:



i.e. I was confronted by the usual incomprehensible circuit board, and 20 leads. Showing great courage and initiative I attached leads to all available connections ensuring that at least one lead was attached to each possible place and that no lead had an unattached end. Two ammeters, one voltmeter and one wattmeter were included for measuring purposes. The general effect was almost convincing.

Test Procedure: With the rotor short circuited, a series of readings of all instruments was taken, as was shaft torque and speed, from minimum shaft load to the maximum allowed by the instrument ranges.

The above process was repeated for $R(\text{ext}) = 0.5 \text{ ohms}$ and $R(\text{ext}) = 1.0 \text{ ohms}$ per phase.

i.e. I picked up a broom handle, closed my eyes, took a deep breath, and turned on the supply. The board fuses blew. These were replaced, the standard number of three leads rearranged, and the above process repeated. The wattmeter blew up. A marvellous sight this—that faint wisp of blue smoke and the delicious aroma of burnt insulation. Three more leads were rearranged and I tried again. Two of the leads became permanently fused to the circuit board. This seemed sufficient.

Results: Curves of efficiency, torque, slip, power factor and line current were plotted in a function of power output. These can be seen in Graphs 1-5.

Curves of torque versus slips were also plotted for the three resistance values; these are shown in Graphs 6-8.

i.e. The results were copies from that invaluable piece of laboratory equipment, the former student's lab. book. Having wheedled from the electrical genius at the next bench that the required curves are in fact straight lines, these were drawn at varying angles on 8 sheets of graph paper. Dots, crosses, circles and squares were liberally placed on or near those lines.

Discussion of Results: The results were on the whole in general agreement with the theory, within engineering accuracy, bearing in mind the limitations of accuracy of the equipment, and the approximations used in calculations. It is evident that the slip-torque characteristic of the motor is essentially linear, and that the slope of this line is dependant on the value of $R(\text{ext})$.

i.e. The results are rubbish. They've been used by a succession of students for the last 10 years, and probably came from a different experiment anyway.

Conclusion: The variation of slip-torque characteristics of a wound-rotor induction motor with varying external rotor resistance has been established.

i.e. The whole bloody thing is a farce.

An Ideal Tubbing Man

DAN McCARTHEY

Down through the long history of tubbing, man has sought to both improve and perfect the tubs that he must paddle. Not much attention at all has been given to the paddler; now however, within our own precincts, a team of brilliant scientists led by that eminent biolo-engineero H. Richardson is tackling the problem. Using the latest scientific techniques, and a lot more besides, they plan the ideal tubbing man.

Mr. Richardson was kind enough to indicate to me some of the ideas his group is considering.

"We see him," intoned leader Richardson, "as a highly specialized but slightly odd looking fellow. Legs for instance, are far too long and there is no reason for not terminating them," he jabbed at my left kneecap with a carving knife, laying open a four inch gash—"at the knee". Termination should be achieved, he thought, with a foot measuring, "roughly size 19 for a well shod specimen," the sole of which will be covered with "thousands of little suckers". Enthusiastically he described its function: "with this useful appurtenance he will attach himself securely to even the most highly glazed of tubs."

Going on he pointed out that the number of legs on the present models represents unnecessary duplication and "one good solid leg, centrally located should quite suffice."

From the waist to the armpit the present design is amazingly suitable and "I feel sure," says engineero-philosopher Richardson, "that we are only anticipating nature in this design."

He went on to say, however, that the head is far too big and from drag considerations is "just plain awful". "Instead" he enthused, "something about the size of an apple would be grand". Consider! Ears, nose and mouth are all quite useless in tubbing, but with a sense of

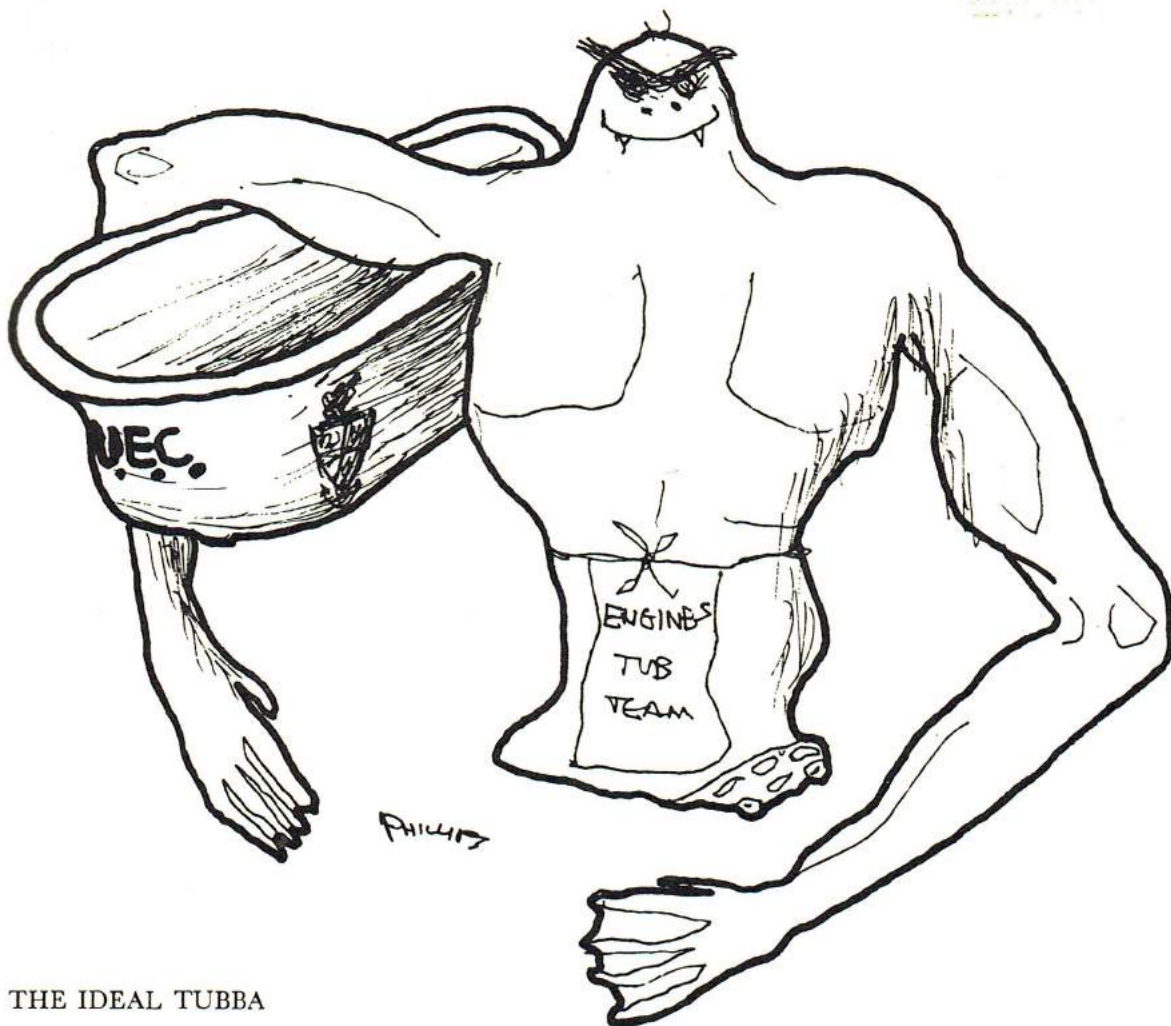
balance, good eyesight and instinctive hatred for all faculties other than Engineering—what a big-race temperament the chap will have?"

The arms, Monsieur Richardson states blandly, should resemble as closely as possible shovel bladed oars, like those favoured by the German Olympic eight. This requires an arm-length of close on fourteen feet, disposal of thumbs and the four fingers symmetrically placed, each two inches wide and twenty-seven inches long. The backs of the fingers should be hairless. The female model, Hugh laughingly remarks, should have no trouble getting jobs as go-go girls in discotheques.

Regarding as to how the team hopes to achieve this extremely sophisticated designing, Herr Richardson became extremely secretive. "Yes, selective breeding does present possibilities," he replied with a crooked smile. Yes, modification had been achieved on the present human structure. No, they had not been buying octopus at five bob a time for grafting experiments. Yes, they had adopted techniques from an African tribe who extend their necks, "only" he added proudly, "we've optimized and accelerated it." He had "no idea" how a freshman came to be strung up in Winthrop Tower with 200 lb. of lead on either arm. No, there had been no accidents—I noticed he fiddled with his paper-weight, a femur. Yes, it was true that they had planned to shrink freshmen's heads to the required size but it had been too difficult. Yes, they had used lecturers instead.

And so little by little I was able to build up a picture of how these clever men are tackling the problem. As I rose to leave, Richardson smiled disarmingly and remarked, "What long arms you have . . ."

But I had reached zo-ol by then.



THE IDEAL TUBBA

Samson Agonistes

I test my bath before I sit,
And I'm always moved to wonderment
That what chills the finger not a bit
Is so frigid upon the fundament.

* * *

Ogden Nash.

Miss Twye

Miss Twye was soaping her breasts in her bath
When she heard behind her a meaning laugh
And to her amazement she discovered
A wicked man in the bathroom cupboard.

Gavin Ewart.

The Budding Bronx

Der spring is sprung
Der grass is riz
I wonder where dem boidies is?
Der little boids is on der wing,
Ain't dat absoid?
Der little wings is on der boid!

* * *

Anon.

Thirty Purple Birds

Toity poiple boids
Sitt'n on der coib
A' choipin' and a' boipin
An' eat'n doity woims.

Anon.



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Surfing in W.A.

K. Campbell

*All work and no play makes for a dull life,
goes the saying, and thus many turn to sport.*

NEW SPORT

A new sport that is at present taking Western Australia by storm is surfboard riding. Initially the only board riders were the lifesavers with double skis and racing boards made of plywood. These boards were relatively heavy and hard to manoeuvre in surf and only the older members used them. The next step was the Hawaiian type board that was approximately 10 feet long and also made of ply, due to the difficulty in obtaining balsa in those days (approximately 1956). A fin was placed at the rear end to prevent side slipping and the rider could, more or less, control the board by shifting weight, which was found easier in the standing position.

Foam plastic was placed on the market at about the same time as fibre glass (1958) and this led to the type of board seen today. The foam is shaped to the desired length (8-10ft.) and a wood stringer set down the middle, then fibre glass and resin coated over the entire board for strength.

A problem of the Coolite foam was that a special epoxy resin had to be used for sealing as the polymer resin disintegrated the foam if placed in direct contact. The advent of Polyurathene foam overcame this problem providing a stronger, more durable foam. With the lighter boards of about 25 lb. compared to the 50 lb. wooden boards the surfing set moved into the younger bracket and disturbed the Surf Clubs by reducing membership. Many of the surfers searched for bigger and better waves thus spending weekends at Yallingup or other well-known surfing spots and therefore not having time for Surf Clubs but still carrying out many rescues at relatively dangerous spots. This is not realised by many.

CLUBS

As with any sport that becomes glamourised

the rowdy element want to become associated and tend to ruin it for others, and so enters the surfy who carries a board on the car, wears a medallion around the neck, spits and swears and generally becomes a nuisance. For the protection of those really interested in surfing as a sport a surfing personality by the name of Peter Dockerty distributed pamphlets for the purpose of finding who was interested in forming a club to organise competitions and provide amenities at undeveloped beaches. Thus the City Beach Surf Riders' Club was formed in 1961 and West Coast and Yallingup Clubs followed suit.

The next development was the formation of the Australian Surf Riders' Association (1963). In New South Wales where surfboard riding was big and the Councils realising this, had an area set aside at every beach for surfboards.

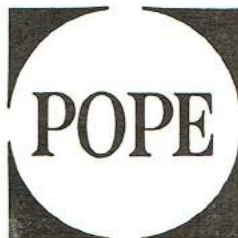
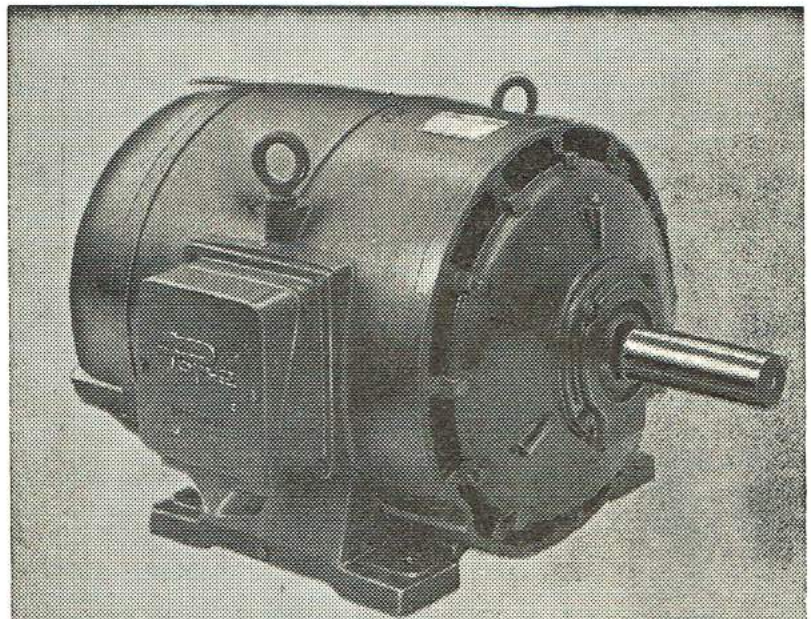
The A.S.R.A. was to head State Associations and so all the clubs formed in W.A. (nearly 15 by this time) appointed a President to represent them all. At this time the big business men in certain companies realised the following of surfing and sponsored an Australia-wide competition, letting the State bodies organise State competitions and holding an Australian Championship at Manly in Sydney for the placegetters in May, 1964. The success of this competition meant the Championship became a yearly affair and may be held in W.A. as our standard improves.

SURFING TIPS

If it is intended to take up surfing, a board is essential and for the beginner it is best to purchase a secondhand board long and thick enough to float you comfortably. The cost varies between \$40-\$60 for a secondhand board of reasonable condition. It must be remembered to look for a board made by a known manufacturer as some boards are pop-outs.

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Non Loqui



Tony Smith—Hangs Five.

Photo by Dave Condon.

The next step is to give sufficient friction on the upper surface by applying paraffin wax by rubbing or even melting on an even coat.

Before venturing into the sea it may help to practice kneeling on the board in calm water and when the balance of the board is determined try riding broken water lying down and then kneeling up. Moving out about 30 feet behind the broken water it can then be attempted to try and catch a wave before the break and learn to keep the nose from pearling.

The last difficult step is to stand up. Perhaps the best method is to catch the wave while kneeling and thus the balance point is nearly constant and by holding on to both rails of the board and looking straight ahead—not down,

feel for a foot position with the front foot (normally the left foot) and with the legs spread about 3 feet apart stand up. This final step may take a week of solid practice.

If an expert surfer is watched it may be noticed that by moving out at an angle to the wave he stays with the steepest part of the wave and gets the greatest speed and this gives more stability to the board and if the wave starts to become too slow he cuts back into it. These turns are brought about by shifting the back foot to the turning side of the board and thus give greater drag on that side. As one becomes more experienced the body can be leaned into the turn and the turning of the board plus a centrifugal effect tends to hold the rider on.

TRICKS

Later stages of riding may bring one to appreciate that it is impossible to develop a perfect sense of balance but by trick riding balance can be improved.

Nose riding can be divided into two categories. Firstly, some riders tend to get the board moving with maximum speed along the face of a wave that is breaking fast and move up to the nose with a series of steps, two at a time and hold that position as long as possible. The other method is to get the board moving out of a wave and by holding the weight at the back of the board, a stall position is brought about. If, just as this position is reached, a run is made to the nose, the sudden shifting of weight causes the board to gain speed but then it is necessary to move back again and trim the board, or balance its forward motion.

Other varieties of tricks such as spinners, standing on one foot, tandem riding and just about anything you can think of require speed which gives balance.

Surfing is a sport that can never be mastered but a good ride can give a feeling of superiority over Nature until the next wipeout, and each wave caught is especially made for the rider and is infinitely variable.

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The Fog Index

As Plagiarized by C. A. Bagley

This article defines and explains the concept of the Fog Index.

The Index is a measure of the "readability" of an article in terms of the amount of education the reader must have had to be able to read the article fluently. Dimensional Analysis on the problem gives an expression for an index named the Fog Index, as

$$I_F = \text{fn } (\bar{L}, S)$$

where \bar{L} = the average number of words in a sentence in a paragraph

S = the total number of words of more than three syllables in the paragraph excluding

(a) those words made to three syllables or more by the addition of 'ed' 'es' or 'ing'.

(b) words capitalised.

Empirical studies have defined the length of the paragraph to be taken as one hundred words (within plus or minus six), where the paragraph may include several actual paragraphs in the literary sense. These studies also give a calibration constant of value zero point four.

Thus the value of the index becomes:

$$I_F = 0.4 (\bar{L}, S)$$

This calibration constant makes the index equal to the number of years of education the reader must have had to be able to read the

article etc. fluently. By fluently is meant reading at the reader's normal speed with comprehension of the work on the first reading.

The justification for such an index as a guide to authors become apparent when it is explained that in many cases important memoranda, letters, articles, etc., are not read but thrown away because of the verbiage. The author has calculated inter-departmental memoranda to have Fog Indices of over sixty in one establishment where he has been employed. But for the fact that they related to holiday times they would not have been struggled through.

It is obvious that the Fog Index as defined above is only applicable to works with little or no mathematical or other symbolic representation. Indices for different fields are at present being formulated, but a large amount of study of the field remains to be done. A backlog of centuries has accumulated since the last major work was done before the introduction of the letters 'j' and 'w' into the alphabet. That the importance of this factor was recognised by early authors is apparent in the light of the low Fog factors for such works as the Ten Commandments (three) etc.

Thus though the Fog Index defined above is a major contribution to the field it is still only an interim measure. It gives good general results for a limited field of work but should be regarded as a stop-gap measure to prevent inundation by the flow of verbiage that spills from the presses daily.

* * *

The Young Lady From Wantage

There was a young lady from Wantage
Of whom the town clerk took advantage

Said the borough surveyor;

'Indeed you must pay 'er.

You've totally altered her frontage!"

Anon.

* * *

As I was laying on the green

A little book I chanced I seen.

Carlyle's ESSAY on BURNS was the edition—
I left it laying in the same position.

Anon.

THE STAFF WHO'S WHO

On T.V. it's been 'Dr. Who and the Daleks' in the engineering school, to some it's 'Dr. Who and the Intellects'—there's just as much mystery. Just what does each staff member study in particular, what are his interests and what is his background? In this section these queries are outlined, especially for the benefit of those students who are relatively new to the engineering school.

Appreciation is extended to staff members who helped compile these notes.

Mechanical

Professor D. J. Allen-Williams, the Dean of the Engineering Faculty. From the University of Cambridge he received a B.A. (Mechanical Science Tripos) in 1939 and a M.A. in 1943. By 1953 he had a Ph.D. for research on the use of a 30MeV Electron Synchrotron as a Radiotherapeutic Instrument. After considerable experience in civil, electrical and mechanical engineering he became the Chief Research Engineer for Davey Paxman and Co. Ltd. and in 1958 he accepted an invitation to be the inaugural Professor of Mechanical Engineering at this University. He is a Member of the I. E. Aust. and represents the University on the Council of the Australian Institute of Nuclear Science and Engineering and also belongs to numerous other committees. A man with many interests amongst which are automatic controls, nuclear power, development of the North West of W.A., individuals and music. In recent years his research work has been restricted by lack of time due to administration work and his committee responsibilities.

"A cyclist of rare ability."

J. A. Cole (Reader) was awarded the degree of B.Sc. (Mechanical Engineering) 1st class hon. in 1945 from the University of Manchester and a M.Sc. in 1946. He then worked at the National Physical Laboratory, Teddington, on gas dynamics, and then at National Engineering Laboratory in Scotland on hydrodynamic lubrication. In 1952-53 he worked on the N.A.S.A. Lubrication Project at Harvard University while holding a Robert Blair Fellowship. He joined the University of W.A. in 1958 and is engaged in teaching and research on fluid mechanics.

"I have become quite a science fiction addict, I must confess."

J. A. Appleyard. Has a B.Sc. from Leeds University, England, and has held the post of Senior Research Engineer in the Mechanical Research Department of Bristol-Siddley Engines Ltd. After three years as a lecturer at Ahmadu Bello University in Nigeria he joined our staff in 1963. His present research deals with the development of solar radiation for air conditioning in buildings. Gledden tour leader for 1965.

"Length of drive not in keeping with breadth of shoulder."

J. R. Blair: Graduated from Edinburgh University in 1960 with B.Sc. (Eng.) and in 1961 received a diploma from the School of Applied Dynamics in Edinburgh before joining Rolls-Royce Ltd. (Aero-engine Group) until 1963 when he came to this University. Current interests are in mechanical vibrations and automatic control.

E. W. Hemingway: Graduated with a B.Sc. (Eng.) from London University and went on to a D.I.C. for research work on lubrication. Joined the W.A. University in 1960 after 3½ years at Sydney University, 3 years (1945-48) with the R.A.F. and 2 years (1953-55) employment with Rolls Royce. Current research is on lubrication of thrust bearings, measurement of film thickness and pad shape under lubrication generated pressures.

"There should be a gas turbine in every sewerage treatment works."

G. G. Lutz: Graduated from W.A. University with a B.E. in 1937 and commenced lecturing here in 1946. He is a member of the I. E. Aust. Main research topics have been Heat Transfer in Nuclear Reactors. This year he has been on sabbatical leave in the U.S.A.

R. S. Minchin: In 1944 he obtained a B.Sc. (Eng.) from W.A. University and in 1952 a B.E. 1st class hon. He lectures mainly on the theory of machines and is interested in gearing, especially in wear and load capacity and also in dynamic balancing.

"Oops, I've been side-tracked again."

R. B. Noyes: With a B.Sc. (Mechanical Engineering) from Purdue University and a M.S. (Mechanical Engineering) from Oregon State University he joined our staff in 1963, after a period in the Lawrence Radiation Laboratory, University of California. Today he is mainly concerned with Properties of Materials with special reference to response of metals to high speed deformation.

"You wanna lecture today?"

G. J. Rock: Graduating from W.A. University with B.E. (1st class hon.) in 1962, he is at present lecturing on thermodynamics of steam and is engaged on investigations on the transient behaviour of motor vehicles.

"Nothing will out-corner a hot Ford 10."

J. G. Wager: Graduated from W.A. University in 1954 having been the U.E.C. President in that year. After 2 years working with the English Electric Co. on Diesel Engine Production he returned to this University as one of the staff in 1957. This year he is on study leave at Purdue University, U.S.A.

"This is a slide rule."

Civil

Professor K. L. Cooper: Studied at this University for his B.Sc. in 1927 then went on to Oxford University as a Rhodes Scholar to complete a B.A. in 1929 and a M.A. and B.Sc. in 1933. He is a member of the Institute of Civil Engineering and the I.E. Aust. He has worked for the Ministry of Transport, U.K., W.A.G.R., Tasmanian Railways and became a lecturer in civil engineering at University of Melbourne in 1940. In 1945 he became the Principal Research Officer with the Division of Forest Products, C.S.I.R.O. Melbourne, and in 1953 was appointed to the Chair in Civil Engineering at this University. He has been a member of the University Senate since 1963.

"Has the knack of getting to the basic problem."

Dr. C. Massey (Reader): Has the academic qualification of B.E. (Hons.) and B.A. from University of W.A., and Ph.D. from Cambridge. He was on the staff of the University of Canterbury, Christchurch, New Zealand, for some years before returning to W.A. in 1955. His main studies are in structural engineering with emphasis on structural engineering mechanics. Current interests are in stability problems.

"Seems to have mastered the art of solving partial D.E's in his head."

T. H. Cain: Born in London and studied Aeronautical Engineering at London University graduating in 1941 with honours, he then worked for Messrs. Vickers-Armstrongs (Supermarine) Ltd. and returned to academic life in 1946 lecturing at Northampton Engineering College; Royal Aircraft Establishment Technical College (to establish a course in Aircraft Structural Design) and then to Glasgow University in 1953 to take charge of the Aircraft Design section. At present he is at this University on one year's special leave of absence from Glasgow University.

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B. Clegg: Having received a B.E. from this University in 1946 and further training in soils engineering from the Melbourne Board of Works he worked in Melbourne and W.A. for the Commonwealth as a soils engineer. After being employed overseas at London and Canada he returned to Australia to work with the Snowy Mountains Hydro Electric Authority until 1956 when he joined the university staff. At present he represents W.A. on the Australian Committee of the Society of Soil Mechanics and is Secretary of the W.A. State Committee of Water Research Foundation. His lectures and studies are on soil mechanics.

"A practical man".

J. R. Espie: Graduate from this University in 1935 and from 1939-45 he reached the rank of Captain while on the General List B.E.F. attached to the Royal Engineers serving in Malaya and India. Lecturing at his University since 1947 he has been head of the Civil Department and was Dean of the Faculty in 1953. He is a Member of I.E. Aust. Being in charge of the Civil Testing Laboratory he is today mainly concerned with materials testing.

"Last seen with a cigarette dangling from his lips."

R. H. B. Hebbert: Received a B.A.Sc. from University of British Columbia in 1955 and obtained a M.Sc. in Hydraulics from Queen's University, Canada, in 1959. Before coming to W.A. in 1963 he lectured at the University of Alberta. Current interests are in hydraulic transport of solid materials and hydrology.

"Oft quoted as saying—'Waal fellers—I guess you're right'."

Dr. G. Hondros: Was born in Greece but studied at this University and graduated in 1942. He has worked for the Perth City Council and was Maintenance Engineer at the Munitons Factory, Welshpool, from 1942-45. Since joining the staff in 1946 he has done part-time consultant work for Wesfarmers, Main Roads Department and for several city structures. He is also a Member of the American Soc. of Civil Engineers; the American Concrete Institute and the A.P.E. of Aust. being Federal Councillor for this association from 1950-58. He obtained a Ph.D. from this University for research in concrete.

"Lectures on the Philosophical Analysis Structures".

J. H. B. Matthews: Graduated with B.E. at University of W.A. in 1961-62. Since graduation he has spent 2 years as a design engineer with D. H. Fraser of Perth, approximately one year with Ove Arup and Partners of London and approximately one year with the engineering section of Hobbs, Winning and Leighton of Perth. He joined the staff in January and hopes to pursue his interests in the field of reinforced concrete.

"The youngest of the team".

G. Reynolds: Graduated from University of Adelaide with a B.E. in 1953 and an M.E. in 1958, for work on the strength of concrete Grillage Type Bridges. Worked for the Cement and Concrete Association in London before returning to Australia as a lecturer in Civil Engineering at the University of Tasmania. Joined the staff here in 1961.

"Has been heard to remark that the Codes are all bloody rubbish."

R. Sacks: Graduated from University of Capetown in 1940 with a B.Sc. (Surv.) and was privately employed on surveying in South Africa until becoming a lecturer in surveying at Witwatersrand University, Johannesburg, until 1946 when he joined the Colonial Service as Superintendent of Survey Training and Framework Control, Trinidad. He was later promoted to Assistant Director (Cadastral Branch), Deputy Director and in 1957 Director of Surveys. Retiring from this position in 1960 he accepted appointment at this University where his main interests are control surveys and survey adjustment.

"Has recently completed supervising the 722nd survey of James Oval. Suspected that he is now contemplating a statistical analysis of the results to find the most probable shape of the thing."

Dr. R. Silvester: Graduate B.E. at University of W.A. in 1946, B.A. in 1950 and Ph.D. in 1959. Before joining the staff in 1949 he held positions in the Perth City Council and the Commonwealth Department of Works. He has published some 40 articles on hydraulic and coastal engineering topics. His main research interest is sediment movement due to wave action.

"Still searching for ping-pong balls in the ocean."

Electrical

Professor A. R. Billings: Was born in England and graduated with B.Sc. (Eng.) 1st class honours from London University in 1949. In 1956 he received a Ph.D. for research work on "Speech Analysis and Synthesis". After working with Service Electronic Research Laboratories at Baldock, England, and later the Bristol University, he accepted the position of Professor of Electrical Engineering at this University in 1959. It is of interest that before obtaining his academic qualifications he spent from 1943-46 with the Fleet Air Arm stationed for some time in Ceylon. Professor Billings is a Senior Member of the I.R.E. Recently he has controlled research projects on thin film study but at present he is on sabbatical leave.

"Dad's a Professor, Mum's a Ph.D.
? , how bright will the children be!"

K. W. Taplin (Reader): Commenced his technical training as an apprentice in heavy Mechanical Engineering and Power Distribution but then studied communications engineering and obtained a B.E. at this University. Subsequently he was employed by the P.M.G. until 1947 when he returned to this University to lecture and later became Reader of the Department. He is a member of the I.E.E. and the I. E. Aust. Today he deals with Electrical Design, Acoustics, Illumination and has considerable interest in Engineering in History.

"Renown for tricky questions which demonstrate (just like we suspected all along) the unending limitations of those abstract maths units."

Z. L. Budrikis, who was born in Lithuania in 1932, came to Australia in 1950 and graduated from the University of Sydney with a B.Sc. in 1955 and B.E. (1st class honours Electrical Engineering) in 1957. After one year of post-graduate studies he worked with the P.M.G. Department Research Laboratories, Melbourne, on channel utilization for T.V. relaying and at the Department of Supply Aeronautical Research Laboratories. In this University he is concerned with television and studies on semiconductor thin films.

"Electromagnetics—no it's Zigmatism."

Dr. J. H. Bundell: a University of W.A. graduate (B.E. 1946) who went to London University to complete a M.Sc. (Eng.) in 1956. In 1962 he was granted a Ph.D. at this University for Analogue Computation with Near Ideal Transformers (Network Analyser). He has had practical experience with the Power System Engineering Department of B.T.H. Co. (England) and done Power Systems Design with the S.E.C. W.A. Concerned generally with power networks and electric machinery he is currently dealing with dynamic torque measurements.

"Presents clear, humorous, dry lectures and bulldozes through course at an amazingly rapid rate—slow him down with golf talk!"

Dr. J. V. Fall: Graduated from University of W.A. in 1949 and continued his studies here in 1950 on Ultrasonics. After working on V.H.F. Antenna development with A.W.A. he returned to lecture at this University. During 1958-60 during sabbatical leave and with the aid of a Gledden Travelling Fellowship he was in the United Kingdom where he was awarded Ph.D. from London University in 1960 for research on network synthesis. His studies are mainly concerned with network design. Dr. Fall is a Member of the I.E.E.E. and is this year Sub-Dean of the Faculty.

"Follows the three F's—Fair, Firm, Friendly."

Dr. B. G. Leary: Studied for his B.E. at the University of New South Wales and was awarded a Ph.D. from Queen's University, Belfast, in Northern Ireland for work on Random Signals in Non-Linear Control Systems. He has worked for Philips, Stromberg Carlson, C.S.I.R.O. (Aeronautical Research), Royal Aircraft Establishment, Farnborough, Long Range Weapons Establishment (Salisbury and Woomera), C.S.I.R.O. Wool Research Laboratories and has been a lecturer at Queen's University as well as at this University. His current academic interest is Non-linear System Identification.

"Quiet, shy gentleman who becomes overjoyed on the smell of that aromatic wattmeter smoke. Students have awarded him an extra degree, M.Sc. (i.e. master of sarcasm!)."

Dr. J. Mills: Graduated from W.A. University in 1952 and obtained his Ph.D. from

this University in 1962. He has held various positions in the Electrical Engineering Department since 1952, and spent a year at Imperial College in 1962. His present interests are in the field of Control Systems, particularly Adaptive Controls.

"Shows unconditional stability over both manner and motors."

Dr. D. H. Steven: Graduated B.E. in 1952 and Ph.D. 1963 from Sheffield University, the doctorate being awarded for work on microwave measurements. Before appointment to the staff in 1955 he worked for S.C.R. Record group and the de Havilland Propellor Company. Current interests are in the field of microwave measurements and applications to thin semiconductor films.

"A pleasant natured Random Function."

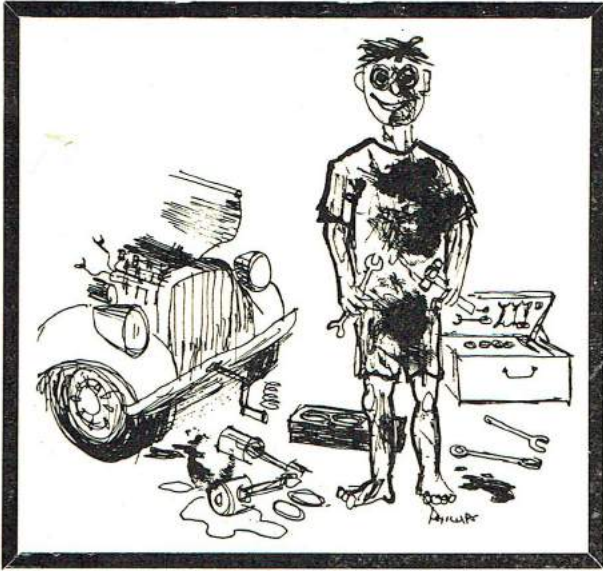
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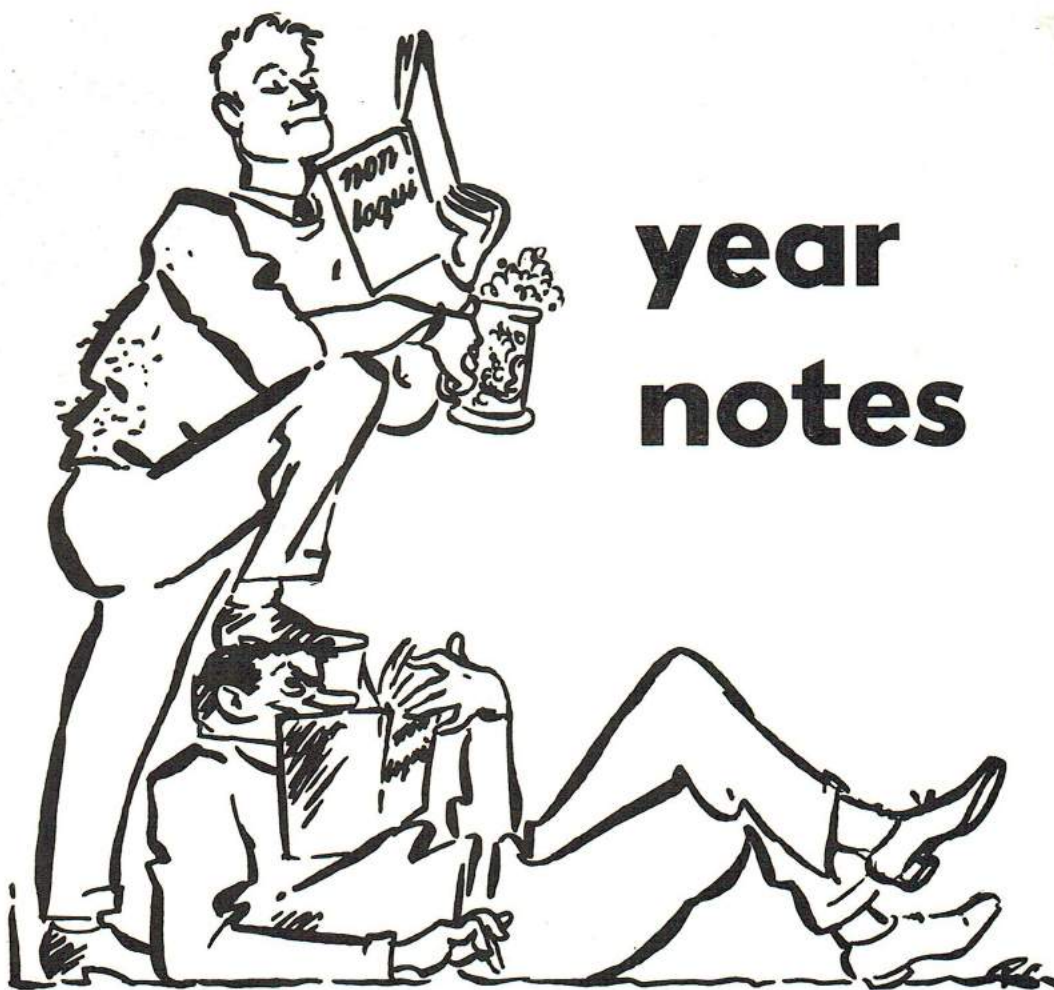
Well, I've always liked messing about with cars and that so naturally when

Well, when I first came here I enrolled in Economics, and then I thought I velly good to work on some of the goods I blought over from Singapore each year but this should interest intelligent Westerner like you I am lucky to have extremely cheap—brand new



My father wouldn't see that, he kept talking about money, but I see it as a moral obligation. Civil Engineering is concerned with the problems imposed on man by God Almighty, and

Cartoons by Pete Phillips.



year notes

1965



FIRST YEAR

The first assembly of the new faces in 1965 took place during the Orientation Week and we were promptly told with great oratory what a tremendous club the U.E.C. was and what great shows they held. So much for those who had intended to do any work. Special emphasis was placed upon the Initiations which was the first in line as far as we freshers were concerned, and one to which we all looked forward with long, drawn faces. It did however come and go with no noticeable decrease in our numbers, although most were barely recognisable for a short period afterwards.

The next show of any importance was the Bucks' Dinner at which, although only about a dozen freshers were present, each one at some stage or other was seen conversing with the shrubbery in what was decided to be a foreign language as there were far more throaty gurgles than usually encountered in the English language.

Between events such as these many hours were spent summing up the idiosyncrasies of some of our lecturers. Such peculiarities as how many times a certain lecturer would twiddle his thumbs in a forty-five minute period, or how many blackboards another could cope with in the same time were freely discussed and actual statistics proved to be quite unbelievable.

Other lecturers brought to mind the recently quoted (by a visiting Professor) joke: "Heard

about the Professor who dreamt he was lecturing to his class and woke up to find he was."

However, for all of their peculiarities most of the lecturers proved to us somehow that they did have an inkling of the subject they were trying to put through to us and that fairly regular attendance, and a few notes did not really go amiss when preparing for the November tests.

The time to these annual tests decreased at what must have been a rapidly increasing rate and after the Annual Dinner which to those who went proved to be a tremendous show, everybody, if and when found, seemed to be busily engrossed in text books and lecture notes.

The situation was then tied up neatly for us by one lecturer, at our last meeting, who stated, "To those who have worked I wish good luck and those who have not worked I shall see again next year."

Although for a while it was thought he was going to give up lecturing and start a paper plane designing (he received hundreds throughout the year) business, this statement proved to be only too true and the annual exams hit us and left us with many different outlooks as to what the future might hold.

In conclusion, congratulations must go to Geoff Mauger from all the 1965 First Years for obtaining the impossible.



SECOND YEAR

To observe is to know. So to know is to observe, for in observation is knowledge and from knowledge comes observation. In as much as to be observed is to be known so is being known to being observed. In the beginning was observation and the observation was with knowledge and with knowledge came observation. In the end was the graduate engineer and three years after that was the second year engineer. Without knowledge these observations would not have been made and without observation knowledge would not have been recorded. Given knowledge the following observations were made:

Dr. Crisp: "The number of uses of semi-conductors in engineering today is infinite and this number is increasing daily."

A posthumously recorded statement by a member of the Engineering staff (the lamented victim of inter-Department animosity): "I would like to tie up my work with the work you have done in methods—who was your maths lecturer?—mm. Dr. Wynter that makes it hard."

Dr. Anderson: "B— particles find it hard to hit the side of a barn at 15 microns."

Mr. Storer, while delivering maths lecture: "Now don't, but don't, take this down, I might want to set this in the examination." Clearly, this was so.

Professor Billings: "Now this is a difficult concept, before I continue is there anyone unhappy with this?"

A hand gingerly appeared from the rear of the theatre—Dr. Fall's.

Professor Allen-Williams—At the Dinner had his probationary poetic licence suspended for a further term.

Mr. Blair suggested in 3rd term that Mechanical Engineering exam study should be under CONTROL and that AUTOMATIC though revision might seem, some SYSTEM was essential. We still studied gears!

Mr. Reynolds—his relationship with Terry "Limpy" Fuller was distinctly fishy.

Students too were observed.

P. T. Coronel—failed for the second time with flying colours.

Wild Bill Harmless—miraculously passed without failing.

Jimmy Wall—got plastered in second term.

K. M. Shugg—gave gutsy display in Prof. A. W's tute—enough to make a man's (?) hair stand on end.

Paul Frieze—foresook celibacy for the rule of martial law!

Dick Lee—hugely smashed after the A grade footy grand final.

Thus we observed and thus we knew.



THIRD YEAR CIVIL

The 1965 third year civil group were in general a maladjusted group. Many valuable hours were spent improvising amusements and vigorously debating just who were the sneaky types indulging in legitimate study. With a few exceptions, everyone succeeded in convincing everyone else that they were really slacking, but somehow 13 out of the 17 satisfied the examiners and passed into 4th year.

B. Brooksbank: Fashion leader. His safari outfit of shorts and short-sleeved jumper proved a great favourite. Main sports were rugby and hand-holding.

B. Burbidge: Dropped in and dropped out. Main sports were rowing and missing lectures.

B. Clarke: Achieved the distinction of becoming the first on the way to going off. Seen shirt-fronting Billy Goggin at Gosnells. Found a home away from home at Steves. Main sports were football and boozing.

T. Flintoff: Tries to build up his height by growing his hair longer. Has become famous for his post-Easter returns from Geraldton. Finally decided that nurses are the best. Main sports were hockey and holidaying.

D. Harvey: Led the field for slackness and brains. Renowned for sudden spurts of energy between lectures and on free afternoons, often resulting in the rest of us being led astray, either to the Coffee Shop, the football field, the golf course, Steve's or the beach. Thus his leadership abilities were often misguided. Despite this he topped the year. Main sports were football and car-cranking.

J. Jeffreys: Although a talented hockey player he showed willingness to practise his football and cricket. Showed eagerness not to let his E-type get cold. Main sports were hockey and bird-watching.

P. Kerr: Pleased Mr. Sacks by trying to borrow a raincoat from a plane table. His jokes were often so subtle that usually the rest of us couldn't understand them, or else refused to. Main sports were hockey and laughing.

G. Kikiros: Found that his car ran better on its side than on the wheels. Had our deepest sympathy for the "terrible dragons" he was forced to bring to the shows. Boarded at Canterbury Court. Main sports were not drinking and taking supps.

Job Lim: Always appeared to be on the verge of laughing, but seldom did, probably because his intelligence is above the rest. Main sports were working and studying.

Mac N. B.: An Anglized Asian who tries to pass himself off as a Scotsman. Occasionally interrupted his social engagements to attend lectures. Main sports were rugby and arranging shows.

R. Mercer: A firm favourite for second place in the marriage stakes. Delights in rubbishing Afro-Asian specimens. Should invest in an alarm clock, or a less comfortable bed. Main sports were football and baiting Ruben.

J. Mirkva: Was often seen limping home from shows on 3 wheels. Favourite saying: "Coffee, anyone?" Could probably invest in a comb. John was undoubtedly the saddest casualty from the class. Main sports were swimming and "conning".

Ng, K. W.: Occasionally ventured forth from a perpetual cloud of smoke, allowing only brief glimpses of his black and red jacket. Main sports were studying and smoking.

E. Pritchard: A great yarn-spinner. Again convinced everybody that he'd fail—except the examiners. A born organiser but should stick to organising himself. Main sports were squash and studying.

A. Rozlapa: Very superstitious, frequently observed worshipping the spirits. Always enjoyed the friendly Friday afternoons surveying on James Oval. Was seen searching for the Bungalow at Rotto at 3 a.m. with his sunglasses on. Main sports were boozing and being casual. Another sad loss to the year.

A. Somow: Renowned for his sparkling wit. Also the most dedicated member of the class. He was determined to get a B.E. even if it took him 10 years. Another class casualty. Main sports were ice hockey and failing.

J. Wallis: Often had his face slapped for winking at women. Came a close second to Ted for the best complainer. Also prone to wander off on his own. It was suspected that he frequently disappeared to do all the work that he claimed he never did. Main sports were hockey and "conning".

THIRD YEAR ELECTRICAL

Graeme Abbey:

Carried all before him, especially Dan (in prac.) Set the campus crossing record due to overwhelming popularity amongst the female set.

Graham Chapman:

Was known to drive fast cars and faster women. Escaped from Canberra's harem to recuperate on healthy W.A. booze.

Editor's Note: Forgot to stop recuperation treatment and now needs recuperation from his recuperation.

Brian Coghlan:

Was so quiet that "presence" in lectures was often doubted, but was noted for his enthusiasm for 5 a.m. dips—especially in Melbourne, Brian has been abroad, as evidenced by the sticker display on his car.

Dennis Hambleton:

Scored A's in TV30, Golf 27 (his handicap) and Steves 02 (twice in attendance). Was known to be a "full" member of the football club. No work in 1st or 2nd term was considered to be a handicap, but performed well in the 3rd Year stakes.

Charlie Kosina:

Created the regimental hand holding technique and taught Alyson to march. Represented the class in Electronics while keeping Dunc on the rails. Showed outstanding talent at all times and was admired by all.

Greg Marie:

Enjoyed a balanced diet of television, birds and beer. Was considered a magician with a football and also managed a disappearing act from most lectures. Showed limited academic inclination but staged a great fight-back in final stakes.

Cary Nathan:

One of the real class stalwarts and an active member of U.E.C. Made a detailed study of the amber fluid and suffered consequent supplementary hangovers. Won acclaim as an organiser (ball committee) and showed unsurpassable ability, enthusiasm and attendance at prac.

Dan McCarthy:

Responsible for the production of much humour, including U.E.C. News. His questions left everyone guessing, including Zig. Was considered as a possible entrant for the Mr. Hairy Legs Competition after always wearing long sock around his ankles.

Keith Robinson:

Noted for his high class transport—whether by hotted-up motor bike or modern saloon car. Was modest and spoke little of personal triumphs, but left for Sydney after exams. Birds or study?

Peter Schoonens:

Much to the regret of all lecturers he was always in attendance. A prominent member of the class he showed a continued willingness to tread where angels fear to tread. Was known to have won widespread success with his opposite sex (?), and passed well in the real test of ability in November.

Mick Slee:

In between football, beer and birds was heard to utter "You're wrong again, McCarthy!" One of our social set, he appeared to be a firm advocate of the slogan of the three I's—learning, loving and lazing. Was quoted at short odds in the 3rd year stakes.

Ken Walters:

Was more interested in the sport of loving rather than the loving of sport. His energies were divided between the electrical department and a bird in Tasmania. Enjoyed success in both divisions and was eventually lured to Tasmania for the duration of the vacation.

Winnie Warokka:

An understanding friend, he made a peace-pact with our national servicemen. Participated in an active social life and was held in high esteem by all members of the class. A great guy.

Bob Yeoh:

One of the true Engineers following our glorious motto "Non Loqui, Sed Facere". Bright and quiet, Bob doesn't say much but thinks a lot and proved beyond doubt that the examiners are not the only ones who can pass the papers they set.

THIRD YEAR MECHANICAL

For a smiling group of ten who greeted each other to begin on a path away from extraneous work for the rest of the course, hopes were dashed to the ground as Prof. started on atomic physics AGAIN. More deviations came from Electrical Department in the form of sleepy lectures from Tappy and utter confusion from Stevens's Lab. sessions were fun though, Ken Allen discovered on a CRO that the output of an overloaded transistor amplifier can bear striking resemblance to a pulsating Sabrina.

Coming closer to home we found a fine line-up of personalities from our own department headed of course by that dynamic English poetical Prof. David Bill George Allen-Williams, etc., etc. who put us through the delights of lecturing back to him. Dynamic must also apply to our "American West Australian" Roy with the vocal modulation of an opera singer and a consumption each lecture of six Alpines and two sticks of chalk.

Thermingway delivered brilliant lectures on hot air in his inimitable dialect, interspersed with well remembered classics as "you're late young marn!" and "If you haven't got a refrigerator your meat will rot!"

Rockey Jockey kept himself amused with Good Guy jokes.

Our Gear dropper was constantly haunted by the aphrodisiacal smell of passion fruit in the lecture room, was often heard to say "Am I supposed to be lecturing you now?"

The terrible ten were:

KEN: Of Sabrina fame.

KEITH: A surfer—not a surfie.

TREV: The wise old man of the team.

MIKE: Just time for a quickie at the yacht club.

IAN: Once flew an aeroplane, still wears smiling flying boots.

LYNN: Set up an espresso bar in the labs.

DAVE: A connoisseur of fine cars.

RICK: The fast Mini? "Ahem it's mum's."

DON: Our only oriental fellow.

TOMBOT: Said "Don't like women anyhow."

Also seen at a few lectures, Jack.

Ken and Tombot lost at marbles. R.I.P.



FOURTH YEAR CIVIL

Coxon:

Claims that there is too much to do and too little time to do it in. Therefore economises on sleep.

Faull:

Dashes in and out of the library at high speed, consults with Harvey over the occasional problem.

Wildy:

Almost looks an intellectual but in fact is a golfer. Now normally seen emerging from a pile of computer paper.

Wu:

Our only rep. from the inscrutable East. Tried smoking a pipe to cultivate the academic look.

Hewitt:

A tempestuous soul who gets a trifle annoyed at times.

Baranowski:

Nick the Needle. Always ready with a question right to the point. Went to the Opera House, Utzon left.

Non Loqui

Ladner:

Heard wedding bells all year, but remained unperturbed. Now plays with bulldust.

McCullough:

A lad with an unusual mind. Starred in Surveying. Also had a woman chasing after him.

Rushton:

A long thin bloke. Had a few differences of opinion with the examiners.

Mace:

A happy round chappy who has supreme confidence that all will be well if we keep grinning and don't worry.

Pritchard:

A conscientious lad who wears tight strides and little hair.

Phillips:

An enigma. Rarely seen. No-one has yet found where he hitches his horse.

Temby:

A big head on a little body. Won an I.S.A.S.



FOURTH YEAR ELECTRICAL

Ray Cole:

One of the brightest sparks. Has been known to miss the occasional A. Drives a speedy Cortina between Uni. and golf courses.

Wal Corish:

After perfecting his style of sleeping through lectures in an upright position he turned his mind to problem of producing a formula for "instant knowledge" two weeks before exams. Just add amber fluid and stir!

Phil Dufty:

His resistance was lowered by exams and he stayed home from the Mugger hunting trip to get married.

Jock Irvine:

Master of bats and balls. Cut short his Gled-den Tour to play—cricket. Became another 4th year casualty shortly after.

Kevan McGill:

Our ventilation expert. Made quite a puddle of a nylon cooling fan in the machines lab. To this day he assures us that it couldn't happen, hence disproving all theories about student-proof equipment.

Roman Malyniak:

The secretive type. Just how big is his harem? XES, this may be backward but he's not!

Ken Moore:

Returned from W.R.E. very enthusiastic about tape recorders. He's still ironing out the bugs. After a four year dormant period

a great burst of red herbage appeared during Swot Vac. on upper lip and chin—he now bears a strange resemblance to Mitch Miller.

Ric Mount:

Handsome, lovable, well dressed, etc., etc. . . Also co-editor of Non Loqui!!x**?!!

B. M. Nawawi:

Has decided to become a billiards engineer. Also a keen T.V. enthusiast, has kept a watchful eye on Kommotion, Go, Sing Sing and Club 17. Cannot be forced to give further information even by Gestapo techniques.

Salleh Ridzuan:

Wins our award for smoothest, most immaculate, best dressed sparks man of '65. Quietly confident.

K. C. Tai:

Heard explaining experiment to staff (with appropriate diagrams). "Black box . . . knobs . . . twiddled knobs!" The main drawback of this experiment "not enough knobs".

Colin Veal:

Made a startling recovery after a lean first term. Gained a stone in weight in 2 days after the State lightweight fours. Tried out Jock's method of resting for a few weeks before exams.

Peter Walker:

Pride of the R.A.A.F. Reputed to have had a thumping good time at Dave Feldman's wedding.

Non Loqui

Ken Winters:

His wife visited the engineering school in his car—"Don't disturb him, I only want his cheque book."

K. T. Wong:

Stayed home from Gladden Tour to feed the horses. It is rumoured that the T.A.B. is paying his way. Offered to show Miss Singapore around in the comfort of his house.



FOURTH YEAR MECHANICAL

Chris Bagley:

Nicknamed V.C. Bagley—said "Ming wants me"—showed aversion to lotteries. As returning officer for U.E.C. proposed rigging elections, said "marbles for one marbles for all".

Wayne Bartley:

On awakening from lecture said, "I have a premonition—we'll all pass". Was greeted with derision. Heretics dumbfounded when prophesy materialised—Wayne Canonized.

Dave Craze:

Spent a lot of time helping out Physics at C. G. Hosp. Read 72 books on topic of converting '48 Austin Tourer to rocket power. Conversion unsuccessful—blew head gasket.

H. P. Cheng:

Remained inscrutable. Found difficulty in translating middle-room talk to natural tongue of Austro-Cantonese. Passed supp, said !x**?! . . . degrees centigrade.

Allan Dickerson:

Went weightlifting—ate weeties. Developed

powerful pectorals, bulging biceps and tiny triceps. Shone at sums, mental, spelling, compo, living English.

Dave Feldman:

Established records for passing with solid C's. Made sound investment for future. Married B.Sc. said "I Do", and did!

Hugh Richardson:

While pleading with registrar for forgiveness for cluttering Engineering car park with brighter-than-red scooter, said "Parking Inspector is a Zealot" was found not guilty.

Peter Stewart:

Did lip exercises to enlarge mouth. Failed but bird has permanent ear to ear grin. When he reads this will probably say "Ar, don't gimme that!"

Joo Kee Teh:

Played Harley Scramble on Vespa—put foot down and broke ankle. Walks with pronounced limp, pronounced "L I M P".



FIFTH YEAR CIVIL

Realising that the final year would be no piece of cake (and believe us you stragglers of the five year course, it wasn't!!), the civil chaps started with a somewhat more serious attitude towards work than normal. However, despite this gallant effort, the majority began to break down very early in the piece, finding it hard to accept the waffle from lecturers after the six months vac.

Apparently it was the intention of every lecturer to pump as much knowledge (for want of a better word) into each student as 24 hours a day made possible. Their methods of doing this varied. Cleggy gave his normal two-week courses merely outlining the syllabus for the year. George "married" the matrix method in structures, and now the library has become "pregnant with books on the subject". Possibly Bob Hebbert could explain this with his theory on flood routing and subsequent stream flows. Mr. H. was last seen at the 1620 trying desperately

to work out the Gravity Dam Design programme that was set as one of the year's projects. Young Bert was seen but not heard, however he managed to bring to notice some interesting material. Of course such a record would not be complete without reference to our lecturer, Mr. Smith, who managed to beat his record of 30 minutes lecturing in one year by 2 hours. This resulted from additional lectures on a subject no one knew anything about. Prof. threw a party during swat-vac, which turned out to be a great success with 13 passes being conned that evening.

Although the end of five or so years was a welcome sight for all concerned there is still some sorrow that the days of being an undergraduate have come to an end. Gone are the golf afternoons, the unique buck shows, balls, dinners, etc., all of which were an integral part of studying. And so the following chaps have been let loose on an unsuspecting world:

Mal Bennett arrived at Uni one day with his nose held together by stitches. Someone had put their foot in his face, with a few rugby springs attached for good measure. Mal is now sweating out his first year of work with the Commonwealth Works Dept. in Darwin.

The inscrutable Chin finished his exams and headed for the bright lights in Sydney. Unfortunately King's Cross was not impressive enough and Chin is now enjoying the comforts provided by the Main Roads Dept. in Perth.

Michael Clancy proceeded to swim his way through final year in the same manner as previous years, but found the examiners less co-operative than normal in assessing his capacity. Mike passed his sup. and is now bringing up the good oil for Wapet.

Bill Duffy passed this year as all others by studying all extraneous material available. Lecture material was too mundane for our Bill. He organized a good Civil party on the night that some low electrical fellow put a road roller in the pond. Bill is now in Alice Springs with the Commonwealth Works Dept., and is pining for a little doll now residing in France.

Richard Jewell, the old man of the group, scored first class honours and has since spared the lives of several lecturers. After three months of preliminary post-grad. study, Richard is now faced with the decision of whether or not to continue with the Road Research Scholarship on base course materials.

Graham Kirkaldy, as ever the quiet one, decided that lecturer's deadlines for handing in projects were not for him and was always just that bit late. He passed in spite of this habit and is now working for Maunsell & Partners in Perth.

Bob Mitson was our football fiend, and playing for East Perth had his nose broken on at least two occasions—explains that it's not worth getting it straightened until he retires. He is now back with a dredging company in Cockburn Sound.

John Peraldini travelled to Harvey to pick up his doll for the Engineers' Dinner. Had to take her back too and even though the Prof. cancelled his 9 a.m. lecture for this reason, John did not appear for the later lectures. Is now supervising construction of the new Waroona Dam for the P.W.D.

Frank Pitman was our only engaged member during the year and has since married Valda. It did not affect his results however, as he took off all the prizes together with first class honours. Frank is now in the Planning, Design and Investigation section of the P.W.D. in that new building on the hill.

Geoff Smith was his usual conscientious self, always asking George awkward questions. Geoff ended up with first class honours and now divides his time between his new job in the Bridges section of the Main Roads Dept. and his new fiance, Jan.

Joe Sweet once again seemed to spend more time with a hockey stick in his hand than a pen. However, he convinced the examiners that he was good enough and is now at Kununurra with the Main Roads Dept. Joe broke all records during the year by attending the Engineers' Dinner as his first Uni. social event ever.

Tan spent the year making up his mind whether to give up smoking or not. When the year was over he took off for the bright lights in Sydney and flatted with Chin in the Cross. When last heard of, he was still trying to find a job.

Ray Vitali was the dark horse of this class. He always had the projects finished well before time and was the one to ask if one had a problem about lecture material. Ray was definitely wasted honours material and has, since the exams, spent his time at Harvey with the P.W.D. and has also joined the ranks of the engaged men.



FIFTH YEAR ELECTRICAL

*Be she frigid or be she hot
Better than booze she is not.
Be she cool or be she hep
To give up booze is a tragic step.*

Throughout recorded history, whenever engineering was important and engineers were strong these lines have occurred and recurred. They have been found on the Pyramids (with a footnote saying that the Pyramids would not be nearly so big had not Fred Pharaoh been full when he designed them). Archimedes had them engraved in slightly improper Greek over the bar of his favourite pub, Stephanós. The Romans, who were great drinkers, did wonders with their non loqui bit. On the other hand, in the Dark Ages they were forgotten, and everybody went snogging, and nothing was built at all.

One would thus imagine that the engineers of today would take a lesson from the pages of history and be most careful about placing drink and dolls in correct order. But not so. Final Year Electrical, who have shown some danger-

ous tendencies indeed. It is a sad tale I have to tell.

To start is to go back to where the 1965 Non Loqui left off. The end of Fourth Year was perhaps our finest hour. Early in the course we had instinctively discovered the truth of the statement:

*While Aphrodite is fine for a clod
Bacchus is the engineers' god.*

and we, as a group, worshipped Bacchus faithfully. High priest Southwood led a firm core of believers and was continually holding devotions at Steves with such stalwarts as Herbie and Mol. True, some did not worship as often as the rest, and were wont to stray steadily toward the opposite camp. Weaker souls, we said, we can but give them good example. True also, both P.J. and young 'Arry were married years ago, but they made gallant if sporadic efforts to worship with the rest. With this tradition behind us we set off on Vacation with strict imperatives to each other to be brave, be strong, be careful and to drink lots and lots of anything alcoholic.

Even so, some souls soon found that the bottle palled and romance called. John Hullett surrendered his eligibility quietly, while throughout Australia the rest noted. He was the first, we said, as we filled our glasses. Meanwhile, Trev was quietly beating a steady path between Melbourne and Sydney and then he, too, appeared in the Saturday morning "Missing, in action" lists. Two in two months, we said reaching for a bottle. Max, without supps for the first time in four years, engrossed himself in bohemian Adelaide, and in February was married to an outstanding Adelaide figure. The wedding was highlighted by HE being painted on the sole of Max's left shoe, and LP on the right, and this becoming obvious as he knelt most solemn at the nuptial altar. First of the lads to get married, we said, as we spiked a keg.

So we regrouped after the Vac to assess the situation and take stock once again. True, a somewhat tattered group, but one relieved to find that those who had pledged their troth had not completely forsworn the bottle. We settled down to the steady drinking that is first term, but (it is all too clear now) were too busy to brew—a sad and decisive fact, and one on which many commentators place much importance.

President Phil was next—his ever-loving Nurse McPhee returned from Melbourne after twelve months' absence, and the heart fonder bit took its toll. Aye, said the men at Steves, a good man gone. Then, with a dash and pace that surprised even the closest observers, that wit, drinker and captain of song Southwood, signed notice of his loss of bachelor status. During the summer his heart was captured by a doll that to him had everything—very strong connections indeed in the Barossa Valley industry. Paradise now! His trip to the symposium in May was a thinly disguised swaining trip to Adelaide.

But even after these two body-blows Fifth Year managed to rally again, and the emphasis

swang back to Bacchus with a drive that is still having repercussions. At Simons, after our last lecture, there was a drinking show in the finest tradition. The supplies were way over the regular gallon per head, and the lads, understandable enough, got full. There were happenings, such as Lloyd being relieved of his lower gear, and having to climb the roof to retrieve it. There, clad only in a shirt, he showed greater Claremont just what a splendid specimen an engineer is. (Alas, perhaps, that is the root of the whole trouble).

After the exams, too, there was a great deal of drinking done. It was at this time that Jack discovered some lines that were to make him a household word:

*Though pavements smash, and waves a-splash,
And the fines will be most cruel,
It is a night an engineer's delight
To hammer a roller into the pool.*

and that was just what he did. His courage we salute, his apprehension we most heartily deplore, and on his fines we offer our deep sympathy.

After the exams the trend swang back once more. Honours men Mol and Ed went on consecutive days—no great surprise to anybody, Ed in particular having been tipped for years. As for the rest, they are still holding out as this is written, but with such decimation we can only expect sporadic spirit. Herbie and Dick, we must confess, do not seem to be showing much resistance at all. Jack Collins is sadly paying for a lot of new paving. On the other hand, Arnold and Bob have all along viewed the whole thing with utter amazement, and have never really seemed to acknowledge the existence of either booze or women. Thoo and Sung viewed the whole thing as Occidental intemperance and calmly ignored it.

The lecturers? They were abused at the dinner and it seemed unnecessary to repeat it all.



FIFTH YEAR MECHANICAL

The last year for a final fling at reducing various members of staff to a state of gibbering incoherency and early senility was characterised by a number of notable events and thus is known as the Year of the Seven Notable Events.

Firstly, Gary Hudson was actually present on the first day of first term, this being taken as a bad omen. Consequently, a little while later Graeme Blackman became the proud father of a baby girl, Michelle by name. The third not-

able event (which was apparent at the beginning and persisted through until "THE END") was the tremendous volume of work thrust upon Mechanical. This evil scourge was perpetrated with glee, especially in second term when the fourth, known fearfully as SECOND SEMINARS (and only spoken of with eyes downcast in subjection) became manifest. This was thought to be the cause of the fifth event, typified by Sander Vandeth fainting at the feet of Mr. Thermodynamics.

By the time it was realised that even if a pass in the final examinations was to occur, after the rigours of five debauched years at University, most Mechanicals would need to go into semi-retirement to recuperate, fifty years being generally agreed on as the right length of time. For this reason, but to still retain a small, drinkable income, Peter Cooper, Gary Hudson and Frank Musk were married (not to each other, you fools) while Frank Musk, John Kelly, Simon Stanford and Colin Stevenson were engaged, all before March 1967. This gave rise to the sixth event.

The seventh and final notable event was that all ten members passed, eight throwing themselves at the big, wide world, while the other two, being gluttons for punishment, refused to leave the fold. This gave rise to the following occupational distribution:

Graeme Blackman—Gasworks, S.E.C., W.A.

Peter Cooper—University of W.A.

Peter Heuppaufl—University of W.A.

Gary Hudson — Commonwealth Aircraft Corporation, Vic.

Nick Humphry—Alcoa Refinery, W.A.

John Kelly—S.E.C., Muja, W.A.

Frank Musk—Commonwealth Munitions Factory, Bendigo, Vic.

Simon Stanford—C.S.R., Sydney, N.S.W.

Colin Stevenson—English Electric, Queensland and U.K.

Sander Vandeth—W.R.E., Salisbury, S.A.

As a final brief note, the death of Dr. Hunka was regretted by all fifth year Mechanical students who had come to appreciate a man with an astute mind and a good sense of humour.

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After graduation, followed by an appropriate period of experience, you will become eligible for Corporate Membership of The Institution and entitled to the designation "Chartered Engineer (Australia)", a title protected by law.

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STUDENTS — 1965

FIRST YEAR:

Acalinovich, V. A.
 Ali, A. L.
 Ang, T. C.
 Baird, P. D.
 Barrett, A. G.
 Beer, K. J.
 Boxsell, P. J.
 Bromell, J. M.
 Brown, D.
 Burke, M.
 Burvill, D. A.
 Charman, I. W. S.
 Charashenku, M.
 Cheong, C. K.
 Chew, S. W.
 Chia, C. H.
 Choate, B. A. G.
 Chwal, S. P.
 Colledge, K. G.
 Cook, M. D.
 Coulter, D. N.
 Crow, J. G.
 D'Alessandro, M.
 Dean, G. W. T.
 De Rossi, A. F.
 Dillon, R.
 Downie, B. F.
 Drok, E. T.
 Dyson, B. J.
 Feher, R. G.
 Field, I. C.
 Gatter, A. D.
 George, K. A.
 Gerloff, D. M.
 Gibbons, P. D.
 Gilbert, A. G.
 Gilbert, M. J.
 Giumelli, J. R.
 Greig, R. A.
 Grieve, R. B.
 Hancock, J. R.
 Hardy, S. G.
 Healey, P. J.
 Heatly, K. M.
 Hebiton, L. J.
 Hemsley, P. A.
 Henderson, J.
 Higham, G. J.
 Hogendoorn, E.
 Hooi, C. K.
 Kent, P. R.
 Kevill, R. A.
 Koenig, A. A. H.
 Kralikas, E.
 Laird, J. M.
 Lau, W. K.
 Lawrence, P. J.
 Lewis, C. A.
 Liew, C. N.
 Lisle, R. I. M.
 Loftus, I. M.
 Loke, K. W.
 Lorenti, J. D.
 Low, C. W.
 Low, K. K.

McCartney, J. A.
 McGuire, P. J.
 Mackenzie, S. R.
 McPhail, R. S.
 Markey, G. J.
 Marsh, G. J.
 Mauger, G. W.
 Metcalf, L. L.
 Millard, G. T.
 Mok, T. F.
 Moyle, A. L.
 Myers, D. G.
 Nash, G. J.
 Ong, G. X.
 Pearce, A. R.
 Pemberton, P. C.
 Perry, R. R.
 Pigram, R. J.
 Piper, P. G.
 Renton, R. J.
 Rice, J. R.
 Richards, D. G.
 Riley, T. W.
 Russell-Brown, R. A.
 Sanders, R. E.
 Sanderson, P. F.
 Scatena, A. J.
 Scott, A. J. B.
 Scott, L. J.
 Seddon, L. N.
 Song, K. H.
 South, P. G.
 Stephenson, R. G.
 Streppel, L. J.
 Struthers, J. L.
 Sturman, J. J.
 Swan, G. S.
 Tan, K. H.
 Tea, S.
 Teoh, T. C.
 Tham, W. S.
 Tiverios, A. J.
 Tung, S. L.
 Van Beuningen, H. A.
 Veitch, R. J.
 Warnock, D.
 Williams, A. S.
 Williams, G. F.
 Wilson, J. J.
 Wong, V. S.
 Woolcock, L. J. F.
 Yeap, S. H.
 Yorath, J. L.
 Zec, B. N.
 Dartnall, W. J.
SECOND YEAR:
 Avery, A. E.
 Bennett, P. G.
 Booking, D. M.
 Bosich, M. E.
 Cantoni, A.
 Carlton, W. G.
 Chang, K. F.
 Chintakananda, A.
 Coronel, P. T.

Cygler, E.
 de Beaux, T. J.
 Della-Bosca, J. C.
 Dyson, B. J.
 Eastlake, P. J.
 Fitzpatrick, M. D.
 Frieze, P. A.
 Fuller, T. A.
 Gardner, D. E.
 Gill, J. I.
 Greay, B. K.
 Gunn, R. I.
 Harmsen, W. C.,
 Henneveld, M.
 Hinde, J. F.
 Ho, K. N.
 Hopwood, P. F.
 Hough, D. G.
 Hover, C. D.
 Kings-Lynne, T. A.
 Lantzke, R. T.
 Lee, R. W. G.
 Leivers, G.
 Llorens, J. P.
 McCarter, J. C.
 McMath, T. W.
 McNamara, J. G.
 Mackinlay, D. B.
 Male, R.
 Martin, G. S.
 Matassa, M.
 Milosz, G. R.
 Morrison, I. J.
 N^o. V. M. W.
 Nicholson, P. G.
 O'Donoghue, R. M.
 Oehlers, R. R.
 Okis, J.
 O'Neill, M. R.
 Ong, S. C.
 Peh, K. C.
 Popham, R. G.
 Poynton, C. J.
 Reith, A. D.
 Richards, B. M.
 Scott, P. E.
 Shier, F. W.
 Shugg, K. M.
 Smailes, R. J.
 Sobejko, K. S.
 Sylwestrzak, D. A.
 Talianchich, M. M.
 Tang, B. K.
 Tate, C. M.
 Taylor, M. R.
 Teo, H. L.
 Then, C. P. H.
 Ung, T. K.
 Ventriss, H. B.
 Wall, J. A.
 Walter, K. R.
 Want, F. M. O.
 Waring, R.
 Watkins, R. G.
 Watson, G. R.
 Winslade, R. J.

Wong, P. C. A.
 Yovich, D. J.
 Yuen, W. L.

THIRD YEAR:

Civil
 Brooksbank, B.
 Burbidge, W. R.
 Clarke, B. A.
 Flintoff, W. T.
 Harvey, D. R.
 Jeffreys, J. D.
 Kerr, P. G. H.
 Kikiros, G. C.
 Lim, J.
 Mac, N. B.
 Mercer, R. W.
 Mirkva, J. F.
 Ng, K. W.
 Pritchard, E. D.
 Rozlapa, A.
 Somow, A.
 Wallis, J. F.
Electrical
 Abbey, G. J.
 Chapman, G. C.
 Coghlan, B. A.
 Hambleton, D. V.
 Kosina, C. J.
 McCarthy, D. P.
 Marie, G. V.
 Nathan, C. J.
 Robinson, K. L.
 Schoonens, P. C.
 Slee, M. A.
 Walters, K. J.
 Warokka, W.
 Yeoh, S. H.
Mechanical
 Allen, K. G.
 Campbell, K.
 Eastwood, T. R.
 Halleen, M. D.
 Jeffery, I.
 Kirkham, L. O.
 Macey, D.
 Paterson, R. J.
 Tang, D. L. P.
 Thomas, A. D.
FOURTH YEAR:
Civil
 Baranowski, N.
 Coxon, J. R.
 Faul, R. C.
 Hewitt, B. E.
 Ladner, P. A.
 McCullough, R. H.
 Mace, H. J.
 Phillips, P. E.
 Pritchard, R. G.
 Rushton, D.
 Temby, C. R.
 Wildy, I. D.
 Wu, N. W. Y.
Electrical
 Cole, R. J.
 Corish, W. A.

Dufty, P. O.
 Irvine, J. T.
 McGill, K. J.
 Malyniak, R.
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